

Deep Space Cubesat Regenerative Ranging Transponder (DeSCReeT), Phase I

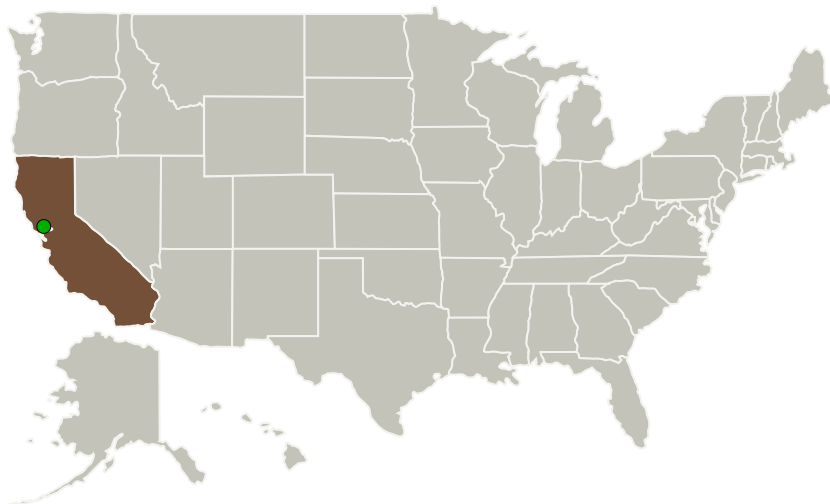
Completed Technology Project (2014 - 2014)



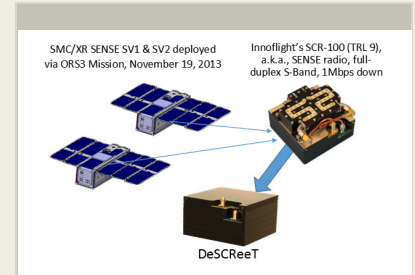
Project Introduction

Innoflight proposes developing a 0.5U Deep Space Cubesat Regenerative-ranging Transponder (DeSCReeT) compatible with NASA's Deep Space Network (DSN) and similarly capable ground assets and with flight-ready units available for CubeSats deployed in cis-lunar space via the Exploratory Mission 1 (EM1) program. The transponder will leverage Innoflight's flight-heritage Software-defined Compact Radio (SCR) family of radios. Phase 1 design efforts include requirements gathering from Pre-Phase A and Phase A CubeSat missions, Forward Error Correction trades, X-Band versus S-Band trades, and radiation-tolerant component trades. Given the EM-1 timeline, the Phase 1 effort will successfully complete a CDR-level design by the end of the period of performance.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Innoflight, Inc.	Lead Organization	Industry Veteran-Owned Small Business (VOSB)	San Diego, California
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California



Deep Space Cubesat Regenerative Ranging Transponder (DeSCReeT) Project Image

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Primary U.S. Work Locations

California

Project Transitions



June 2014: Project Start

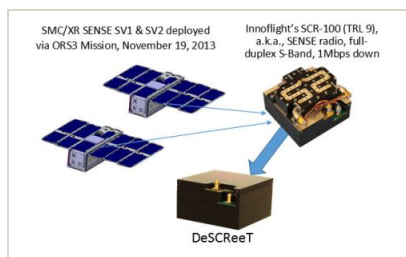


December 2014: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137442>)

Images



Project Image

Deep Space Cubesat Regenerative Ranging Transponder (DeSCReeT)
Project Image
(<https://techport.nasa.gov/image/136690>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Innoflight, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

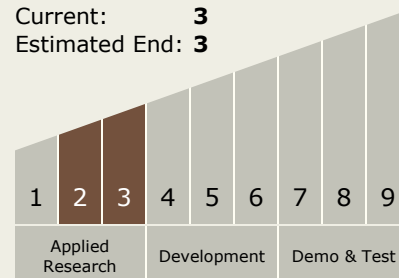
Carlos Torrez

Principal Investigator:

Joseph Koeniger

Technology Maturity (TRL)

Start: 2
Current: 3
Estimated End: 3



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Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
 - └ TX05.4 Network Provided Position, Navigation, and Timing
 - └ TX05.4.1 Timekeeping and Time Distribution

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System